

REMARKS/ARGUMENTS

Re-examination and favorable reconsideration in light of the above amendments and the following comments are respectfully requested.

Claims 1 - 19 are pending in the application. Claims 1 - 7 and 13 - 19 stand rejected and claims 8 - 12 stand withdrawn from consideration.

By the present amendment, claims 8 - 12 have been cancelled without prejudice and objected to claims 20 and 21 have been placed into independent form. Applicant intends to file a divisional application to the subject matter of claims 8 - 12.

In the office action mailed June 21, 2005, claims 1 - 5 and 13 - 17 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,628,814 to Reeves et al. and claims 6, 7, 18, and 19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Reeves et al.

The foregoing rejections are traversed by the instant response.

The present invention relates to a process for repairing at least one crack in a metal workpiece such as a turbine engine component. The process comprises the steps of forming a braze paste containing a first nickel base alloy material containing boron and chromium and a second nickel base alloy material containing chromium and cobalt, applying said brazing paste to an area of said metal workpiece containing said at least one crack, and subjecting said brazing paste and said workpiece to a brazing cycle by heating said brazing paste and said workpiece.

The Reeves et al. patent relied upon by the Examiner is directed to a technique for applying an abradable coating 32 to an inwardly facing surface of a shroud 22 used in a gas turbine engine (see FIG. 2). The Reeves et al. patent has nothing at all

to do with any method for repairing at least one crack in a workpiece such as a turbine engine component.

In Reeves et al., the coating is formed by mixing a first alloy precursor with a second alloy precursor. The first alloy precursor has a composition which includes nickel, cobalt, chromium, aluminum, and yttrium. The second alloy precursor contains nickel, cobalt, chromium, aluminum, silicon, and boron. The two powders are mixed with a binder. The powder-binder mixture is pressed to form a compact which has a curved shape that conforms to the inwardly facing surface 30. See column 6, lines 53 - 57. The compact is joined to the surface by an adhesive. See column 6, lines 61 - 62. The compact and substrate are then heated to a brazing temperature to densify the compact and bond the compact to the substrate. See column 6, line 66 to page 7, line 8.

Claim 1 is allowable because Reeves et al. do not teach or suggest a step of "applying a brazing paste to an area of said metal workpiece containing said at least one crack." The word "crack" is not mentioned anywhere in Reeves et al. Thus, Reeves et al. can not anticipate claim 1.

Claim 1 is further allowable because Reeves et al. never subjects anything which can be called a brazing paste (emphasis added) to a brazing cycle by heating said brazing paste and said workpiece. In Reeves et al. the two alloy precursors are formed into a compact with a curved shape that is adhesively bonded or spot welded to the surface. The compact is not in the form of a paste when it is adhered to the surface of the shroud. Therefore, Reeves et al. never heats a brazing paste (emphasis added) and the workpiece as part of a brazing cycle.

The Examiner's comments at the bottom of page 4 of the office action are noted; however, the Examiner is wrong. First,

Reeves et al. never mention the word "crack". Thus, there is nothing in the Reeves et al. patent which would teach or suggest how to repair a crack with a brazing paste. Further, there is no brazing paste having the claimed composition in Reeves et al. At best the Examiner's argument is an inherency argument; however, this argument fails. To establish inherency, there must be extrinsic evidence that makes it clear that the missing descriptive matter is necessarily present in the thing described in the reference and would be so recognized by those skilled in the art. See *In re Robertson*, 49 USPQ 1949, 1950 - 51 (Fed. Cir. 1999). The Examiner has cited no extrinsic evidence which would meet this standard. Inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. *Id.* Finally, assuming microcracks existed, any such microcracks which did exist in the shroud structure would be covered and filled by the adhesive or the material used for spot welding. The material forming the compact 50 would never reach the cracks.

Claims 2 - 7 are allowable for the same reason as claim 1 as well as on their own accord. For example, Reeves et al. never heats the brazing paste and the workpiece to the temperatures set forth in claim 2. Claim 3 is allowable because Reeves et al. never says that the powders are mechanically mixed. Claim 4 is allowable because Reeves et al. does not teach or suggest prefilling said at least one crack with said second nickel base alloy material.

Claim 13 is allowable because Reeves et al. does not teach or suggest the steps of "applying said brazing paste to an area of said turbine engine component containing said at least one crack" and "heating said brazing paste and said turbine engine

component to cause said braze paste to flow into and fill said at least one crack". As discussed above, Reeves et al. never mentions the word "crack". Further, the adhesive or spot welding material which is used by Reeves et al. would prevent any material other than the adhesive or spot welding material from flowing into the cracks. Thus, there can be no anticipation.

Claims 14 - 19 are allowable for the same reason as claim 13 as well as on their own accord. Clearly, Reeves et al. never teaches or suggests the method steps of claims 14 - 16.

With regard to the obviousness rejection of claims 6, 7, 18, and 19, the rejection fails because the Examiner lacks any teaching which would lead one of ordinary skill in the art to perform the claimed method steps. The Examiner's position is in error because he focuses on properties and not on the claimed inventions which are the method steps. Thus, claims 6 and 18 are allowable because there is nothing which teaches forming a brazing paste with a 1:1 ratio. At best, Reeves et al. does 60:40 which is not close to 1:1. Claims 7 and 19 are allowable because Reeves et al. does not teach mixing the two claimed materials.

New claims 20 and 21 have been placed into independent form and are now allowable.

For the foregoing reasons, the instant application is believed to be in condition for allowance. Such allowance is respectfully solicited.

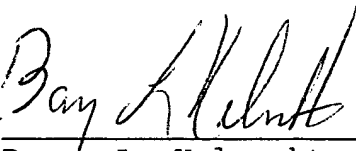
Should the Examiner believe an additional amendment is needed to place the case in condition for allowance, he is hereby invited to contact Applicant's attorney at the telephone number listed below.

A Notice of Appeal is appended hereto.

The Director is hereby authorized to charge the extra independent claim fee and the Notice of Appeal fee in the amount of \$700.00 to Deposit Account No. 21-0279. Should the Director determine that an additional fee is due, he is hereby authorized to charge said fee to said Deposit Account.

Respectfully submitted,

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Date: September 19, 2005

I, Nicole Motzer, hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313" on September 19, 2005.

